CALFED Bay-Delta Program Project Information Form

Watershed Program - Full Proposal Cover Sheet

Attach to the cover of full proposal. All applicants must fill out this Information Form for their proposal. Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.

1. **Full Proposal Title:** Stewardship Support and Watershed Assessment in the Napa River Watershed: A Two-Year Project
   Concept Proposal Title/Number: same as above/0145 **combined with** Landscape adjustments to historical and recent land use management: Implications for Napa Watershed restoration/WSP01-0094
   Applicant: Napa County Resource Conservation District
   Applicant Name: Bob Zlomke
   Applicant Mailing Address: 1303 Jefferson Street, Suite 500B Napa, CA 94559
   Applicant Telephone: 707/252-4188 **Applicant Fax:** 707/252-4219 **Applicant Email**:bob@naparcd.org
   Fiscal Agent Name (if different from above): same as above
   Fiscal Agent Mailing Address: same as above
   Fiscal Agent Telephone: same as above Fiscal Agent Fax: same as above Fiscal Agent Email: same as above

2. **Type of Project:** Indicate the primary topic for which you are applying (check only one)

XX Assessment	_____Monitoring
_____Capacity Building	_____Outreach
_____Education	_____Planning
_____Implementation	_____Research

3. Type of Applicant:

_____Academic Institution/University	_____Non-Profit
_____Federal Agency	_____Private party
_____Joint Venture	_____State Agency
XX Local Government	_____Tribe or Tribal Government

4. **Location** (including County):

What major watershed is the project primarily located in:

_____Klamath River (Coast and Cascade Ranges)
_____Sacramento River (Coast, Cascade and Sierra Ranges)
_____San Joaquin River (Coast and Sierra Ranges)
Napa Bay-Delta (Coast and Sierra Ranges)
_____Southern CA (Coast and Sierra Ranges)
_____Tulare Basin (Coast, Sierra and Tehachapi Ranges)

5. **Amount of funding requested:** $360.900
   Cost share/in-kind partners? XX Yes _____No
   Identify partners and amount contributed by each:

Sulphur Creek Watershed Task Force Volunteers time:	$20,900
Carneros Creek Stewardship Volunteer time:	$28,100
Friends of the Napa River:	$34,320

6. **Have you received funding from CALFED before?** XX Yes ____No
   If yes, identify project title and source of funds:

   Napa River Watershed Stewardship, source of funds unknown.

By signing below, the applicant declares the following:

1. The truthfulness of all representations in their proposal
2. The individual signing this form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or an organization)
3. The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the Watershed Program Proposal Solicitation Package and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent provided in the Proposal Solicitation Package.

Bob Zlomke_____
Printed name of applicant

_____
Signature of applicant

1. Describe your project, its underlying assumptions, expected outcomes, timetable for completion, and general methodology or process. ***(3 pages)***

This project proposal is intended to address environmental stressors and enhance resource conservation, management, and restoration using a collaborative approach that encourages broad participation of the stakeholders in the Napa River watershed. Under a framework for integrated management of the Napa River watershed, The Napa River Watershed Owner's Manual, this proposed project will work with existing stewardship groups to conduct baseline watershed assessments, create adaptive watershed management plans, and promote community based monitoring efforts. The proposed project will incorporate collaboration, field assessment, planning, monitoring, and outreach to address a broad range of ecological, biological and sociological values in the Napa River watershed, including steelhead trout and salmon populations, riparian, wetland, and floodplain functions, and water quality.

A key focus of Napa County Resource Conservation District (RCD) activity over the past ten years has been the development of local *stewardship groups*, which are broad-based, multi-interest groups open to all who live or work in sub-watersheds of the Napa River watershed. In this project, we propose to work with two such stewardship groups, the *Sulphur Creek Watershed Task Force* and the *Carneros Creek Stewardship*, to develop watershed management plans that address their interests. The Sulphur Creek group has existed for approximately two years and the members have determined the issues that they would like to see addressed in their watershed plan. As expressed in the letter of support from the Sulphur Creek Watershed Task Force, the group wants to assess the condition of the Sulphur Creek watershed and create a management plan that will provide specific strategies for improving water quality and fish habitat. The results of the assessment and planning will provide a framework for undertaking long-term restoration activities in the Sulphur Creek watershed in an efficient, coordinated manner. Although the Carneros Creek group is newer and has not yet completely articulated their needs, they have voiced a strong interest in watershed assessment. Based on past Carneros Creek stewardship meetings, we know that the group is interested in undertaking an assessment similar to that requested by the Sulphur Creek group, but the issues are slightly different. Further time and effort is needed for the group to detail their needs.

Throughout this two-year project, we will provide facilitation support to these groups as they continue to articulate their interests and needs. During the first year, we will carry out a watershed assessment for Sulphur Creek. While this assessment is being carried out, the Carneros Creek group will more fully define the technical needs they would like to be addressed. In the second year, we will carry out the watershed assessment projected for Carneros Creek. We expect that the tasks for the Carneros Creek watershed assessment will be similar to those of the Sulphur Creek assessment, however, we will be guided strictly by the needs and interests articulated by the local group.

Underlying assumptions:

a) The community should ultimately decide what beneficial uses they require in their local watershed. The definition of "good" and "poor" conditions in the watershed should be made in the context of what is socio-economically desirable and achievable, as defined by the community.
b) Local sub-watershed restoration decisions should be made in the context of historical land use and management and downstream cumulative effects at the watershed or receiving water body

scale. Without these wider spatial and temporal watershed contexts, restoration alternatives are unlikely to have a maximal chance of success.

c) The methodologies, socio-economic factors, and results from local studies will be applicable to the wider context of the objectives of the CALFED Bay-Delta Watershed Program. Therefore, the local community of Napa will enhance the objectives of CALFED.
d) The first step in community driven environmental management is a directive from the community to want to improve, maintain or restore their local environment.
e) Quality, defensible science is an important precursor to sound environmental management and restoration decisions. Once the community has constructed a set of management questions or needs, sound science protocol should be applied within a framework of continued community involvement to address specific questions or needs and to help develop appropriate watershed management plans.

Expected outcomes and Timetable for completion

The ultimate outcomes of this proposal will be <u>two watershed management plans</u> (documents) that include a set of restoration alternates that are desirable and achievable by the community with the aid of local government and agencies in the Sulphur Creek and Carneros Creek sub-watersheds of the Napa River watershed. However, there are a number of important interim outcomes and smaller steps that will help ensure that the final goals are achieved and that the CALFED goals and objectives are enhanced. Below is a brief description of the interim tasks detailed with the expected time of completion. A detailed timetable is included with the budget form detailing the tasks of this project.

a) <u>Develop management questions, needs and hypotheses.</u> The Sulphur Creek stewardship group (with assistance from the Napa County RCD) has already developed a set of questions and needs and is poised and ready to begin physical and biological watershed assessment in the context of existing information and their identified needs. Carneros Creek stewardship group is not as far advanced and, although they have formed a united group, will need further assistance, during the first year of the grant, to accurately define their needs. The immediate and first interim outcome for Carneros Creek will be a set of written and agreed upon needs that will, in the second year of the grant implementation, be used to drive scientific assessment.
b) <u>Physical, biological, sociological, and historical watershed assessments.</u> During year 1 (Sulphur Creek) and Year 2 (Carneros Creek), we will carry out physical and biological assessments that will involve community group volunteers during the data gathering processes. We will provide progress reports and updates at community meetings and involve the community in any interim hypotheses or conclusions that affect the data gathering processes. In addition we will conduct interviews with members of the community, including people from a wide cross-section of age groups and ethnic origins, to gain insights into current and historical land use practices and management that may have affected water, sediment processes, levee or revetment stability or effectiveness, and biological integrity.
c) <u>Data sharing and coordination.</u> Once quality assurance (QA/QC) has been completed and under maintenance of landowner anonymity, specific parts of the data collected will be made available to Stillwater Sciences and the San Francisco Regional Water Quality Control Board to help calibrate or verify the “TMDL limiting factors analysis” and associated modeling being carried out for the whole Napa River Watershed. Specified data may also be provided to the above

organizations for use in a second linked project (Laser altimetry) presently being proposed to the CALFED Watershed Program.

d) Write watershed management plans. At the end of the first year of grant implementation (Sulphur Creek) and at the end of the second year (Carneros Creek), assist the stewardship groups in writing their watershed management plans. These plans will include sub-watershed specific conservation, maintenance, and restoration strategies based on the new data collections, previous efforts, and local socio-economically desirable and achievable beneficial uses, in the context of downstream cumulative effects and CALFED program objectives.

e) Communication and reporting to CALFED. We will report the outcomes of the proposed project at appropriate CALFED forums including a future CALFED science conference (assuming that a similar conference to that held during 2000 will occur in the future). Our aim will be to report our successes (and any failings) to the wider CALFED community of scientists, managers, and the public. This will help ensure review, refinement, and implementation of our methodologies by others in the CALFED problem and solution areas.

General methodology or process

The approach to execute this project is stewardship watershed management, an approach that emphasizes broad stakeholder involvement; environmental justice and equality; consideration of cultural sites of preservation; consensus management using interest-based planning; results-based success criteria; and extensive monitoring coupled with adaptive management that can respond to monitoring feedback. The stewardship management approach utilized by the RCD is very successful in developing and supporting local responsibility for natural resource management. The major function of stewardship is to facilitate communication among people with multiple interests, allowing people an opportunity to get to know one another and realize their common interests and/or concerns. This project will support two existing stewardship groups in fulfilling their desire to know more about their watershed and to develop a coordinated watershed management plan based upon scientific assessment.

Time line

	2001				**2002**			
Action	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Sulphur Ck.								
Group meeting – permission for access								
Physical and biological assessment								
Write the Management plan								
Carneros Creek								
Refinement of the management questions								
Group meeting – permission for access								
Physical and biological assessment								
Write the Management plan								

2. Describe your qualifications and readiness to implement the proposed project. *(2 pages)*

a. Describe the level of institutional structure, ability and experience to administer funds and conduct the project. Identify the fiscal agent responsible for handling the funds.

The Fiscal Agent responsible for handling the funds will be the Napa County Resource Conservation District through DWR.

Napa County Resource Conservation District

The Napa County Resource Conservation District (RCD) has been operating since 1945 to assist local landowners with natural resource conservation issues in Napa County. For over ten years the RCD has facilitated the development of local watershed stewardship groups; noteworthy examples include the Huichica Creek and Dry Creek Stewardship groups. Employees at the RCD are trained in the use of computer modeling; database management; erosion and sedimentation control; watershed assessment; stream bank stabilization; GIS; volunteer monitoring, training and organization; and land stewardship facilitation. The RCD has extensive experience in grant contract administration and will be the fiscal agent under this project.

San Francisco Estuary Institute

In 1993, the San Francisco Estuary Institute (SFEI) was created with a mission to foster development of the scientific understanding needed to protect and enhance the San Francisco Estuary through research, monitoring and communication. Over the past decade, if we include SFEI's predecessor, the Aquatic Habitat Institute (AHI), the San Francisco Estuary Institute has continued to strengthen and considers itself a scientific partner to environmental management agencies and society at large. Our strengths are in testing data-gathering approaches, transferring sampling technology to others, data integration (whether generated by SFEI staff or colleagues in the private, governmental, or academic sector), regional assessments, science coordination, making data and information relevant to decision-makers, quality assurance, data and information management, and communicating results to inform scientific and public debate. Under its present name and mandate, SFEI has more than eight years of experience in administering funds in relation to conducting science based projects in the Bay Area.

Pacific Watershed Associates

Pacific Watershed Associates (PWA) is a widely recognized authority on erosion prevention and watershed assessment methods in Northern California and the Pacific Northwest. Pacific Watershed Associates has completed similar assessments and developed restoration plans for managed wildland watersheds throughout northern California and southern Oregon. PWA has developed erosion prevention and erosion control plans for road upgrading, road decommissioning and road maintenance activities for approximately 7,500 miles of wildland forest road systems since 1989. Many of these sediment reduction projects are currently being implemented to protect and restore fish populations and fish habitat. PWA has completed geomorphic studies and watershed assessments, developed watershed restoration action plans, and implemented erosion control and erosion prevention treatments on federal (USFS, BLM), tribal (Hoopa, Yurok, Karuk), State, and County lands, as well as private timber lands and ranch lands. PWA has also worked with numerous small landowners throughout the north coast to

develop cost-effective erosion control and erosion prevention plans for forest, ranch, and subdivision road systems.

b. Describe technical support available (including support needed for environmental compliance and permitting) to begin and complete the project in a timely manner.

All partners described above have trained technical staff ready to carry out the proposed watershed assessment and facilitation tasks. In addition, the expressed support of the landowners (see support letters) to actively participate in the assessment and planning process will allow the project to begin and to be completed in a timely manner.

With regard to environmental compliance and permitting, section 15306 of the CEQA Guidelines provides a categorical exemption for projects such as the one currently being proposed. The CEQA Guidelines exempt "information collection" projects that "consist of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource." The section goes on to note that these "information collection" projects may be strictly for "information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded."

c. List any previous projects of this type you or your partners have implemented, funded either by CALFED or other programs.

Resource Conservation District projects that have been or are being funded and implemented:
Watershed Coordinator, Department of Conservation
Benthic Macroinvertebrate Sampling, Mennen Environmental Foundation
Napa River Watershed Integrated Resource Management Plan, 205(j)
Napa River Watershed Stewardship, CALFED
Napa River Watershed Year 2, CALFED
Huichica Creek Enhancement Plan, 205(j) and 319(h)
Dry Creek Watershed Plan, California Department of Fish & Game

San Francisco Estuary Institute projects that have been or are being funded and implemented:
Napa River TMDL baseline study, 205(j)
Napa Watershed Historical Ecology project, Friends of the Napa River
Napa Watershed Historical Ecology project II, Napa Valley Vintners Association
Crow Canyon Creek geomorphic and Historical Ecology Project, Alameda County
Wildcat Creek Geomorphic and Historical Ecology Project, Contra Costa County
Carriger Creek Geomorphic Analysis, Southern Sonoma RCD / CALFED
San Antonio Creek Geomorphic Analysis, Southern Sonoma RCD / EPA
Miller Creek Geomorphic Analysis, Marin County

3. Provide a completed budget cost sheet and describe the basis for determining project costs, including comparisons with other similar projects, salary comparisons, and other listed costs. Include all costs of environmental compliance, such as CEQA and/or NEPA, and permits. Describe how the approach to achieving the stated goals of the project demonstrates an effective cost relative to its anticipated benefits. ***(2 pages)***

Project costs for the Sulphur Creek watershed assessment are based on the experience of project partners in similar projects, detailed above under question 2. For Carneros Creek, the costs are estimates for comparable work, although the exact nature of the work to be done has not been determined. The principal expense is for salaries, both for RCD staff and for subcontractors. The hourly billing rates are competitive and those for RCD staff are relatively low, so that the overall cost is not high for a project of this extent. Both RCD and SFEI staff have extensive local experience to draw on, and we expect to be able to work efficiently and well together.

Considerable resources are available to match CALFED funds. The Sulphur Creek Watershed Task Force, the Carneros Creek Stewardship and the Friends of the Napa River are ready to contribute volunteer time to the effort. For the first six months of the project, support for the RCD stewardship facilitator's time under this project is paid for by a Department of Conservation grant.

The project is exempt from CEQA/NEPA, and no permits are required.

The stewardship-based approach to watershed management is cost-effective, because it appeals to the interests of those who live and work there. The proposed project makes efficient use of locally-based technical staff employed by the RCD, enhanced by regionally-based scientists of SFEI and other organizations. The technical project is well coordinated with the interests of local people because it provides what they have asked for.

SFEI has a wealth of experience in developing and implementing projects in geomorphology and historical ecology in the Bay Area. For example, both the Carriger Creek and San Antonio Creek projects had budgets of $50k and $55k, respectively and had similar objectives and outcomes to those proposed for Napa. Our budget for the historical ecology project with Crow Creek in Alameda County was $25k and again had similar objectives to those proposed in the Napa River study. We believe our previous experience in the Bay Area ensures our budget projections to be accurate.

4. Describe the technical feasibility of the proposed project. *(2 pages)*

a. Describe any similarity to previously implemented successful projects in this community or elsewhere.

The proposed project is similar to other stewardship-based technical efforts that the RCD has coordinated in the past 10 years. Development of the Huichica Creek Land Stewardship led to the preparation of the *Huichica Creek Watershed Natural Resource Protection and Enhancement Plan (1993).* The Huichica Creek watershed plan was derived on the basis of the needs and goals of the landowners and agencies involved. It therefore found broad local acceptance, and the plan and the unique partnership from which it sprang have received national attention. More recently, the development of a stewardship group in the Dry Creek watershed has led to development of the *Dry Creek Watershed Plan (2001),* the first installment of which has just been completed with financial support from the California Department of Fish & Game. In these cases, the recommendations made were based on information collected from a variety of sources, with some technical fieldwork, mostly by the RCD and USDA/NRCS.

Other projects carried out by the RCD, such as our *Napa River Watershed Stewardship* project (CALFED Project M92, Grant Number x-999947-01-1), have combined elements of stewardship development with technical studies. The project cited combined simultaneous stewardship development, monitoring, and restoration. These activities were carried out at different places in the overall Napa River watershed. For example, stewardship development took place in the Hopper Creek and Garnett Creek watersheds, while the sites chosen for restoration activities took place in other watersheds. The project was organized to permit considerable flexibility in implementation and as a result, a number of worthwhile activities were carried out throughout the Napa River watershed. We are currently engaged in carrying out work under a follow-up CALFED grant.

The proposed project takes a different tack. The stewardship groups on these two creeks have displayed an interest in finding out more about the state of their watersheds, in order to maintain some features and restore others. Our proposal will enable the stewardships to move through a process of identifying needs and acquiring technical knowledge so that the most cost-effective means can be chosen to carry out implementation or restoration recommendations that result from the watershed assessments.

The proposed project differs as well in its use of a wider group of experts with demonstrated regional experience in the physical and biological analysis of Bay Area watersheds. Wide collaboration will ensure a quality product with maximum potential for successful restoration projects in the future and will increase the applicability of this locally generated information to other watersheds in the CALFED solution area.

b. If the project proposes a new approach or new method with a high likelihood of adding new knowledge and or techniques, or with the potential to fill identified gaps in existing knowledge, describe how it will do so, and what monitoring components will provide substantiation of results.

SFEI's Historical Ecology (HE) methodology is a recently developed and refined detailed methodology for determining causes to and rates of ecosystem change over time. This is a new approach that will add new knowledge and techniques to the CALFED Ecosystem Restoration Program. This methodology was recently published in "The Historical Ecology Handbook – A restorationist's guide to reference ecosystems" edited by D. Egan and E.A. Howell (2001). Demonstrations of some of the products from this type of analysis can be found on SFEI's web site at http://www.sfei.org/hepdemo/. The project involves three phases: 1. Data collection - historical documents, maps, and oral histories, 2. Development of a physical and biological picture of pre-European contact - the distribution and abundance of major terrestrial and wetland habitat types (flora and faunal inhabitants), and the channel network for the watershed, including channel non-connectivity, braided channels, and earlier channel locations, and 3. Snapshots through time and current conditions - information about historical land uses and the recent evolution of the watershed is needed to identify the extent to which modern issues are associated with natural or anthropogenic causes, and, if anthropogenic, due to historical, recent, or ongoing activities.

SFEI's Watershed Science Approach (WSA), developed by SFEI and its partners, is a refined set of geomorphological methodologies for determining the hydrological and sedimentological functioning of a watershed in relation to human modifications over time in the context of management goals and objectives. This methodology avoids the need for long term monitoring of water and sediment (a costly and time dependant process) by taking a detailed view of what the watershed or stream channels look like now and using field indicators and information from the Historical Ecology methodology to interpret the causes and rates of change over time. In this way, it is an extremely rapid and cost effective method for providing information to local watershed decision makers. Again, this is a relatively new approach that will add new knowledge and techniques to the CALFED Ecosystem Restoration Program. Its power is in the attention to detail and the way the WSA interacts with the HE to determine cause-and-effect relationships and therefore empirically derive recommendations for restoration. It integrates physical, biological and social relations in the terrestrial and aquatic environment. This methodology, and an example of its outcomes, was presented by Laurel Collins at the 2000 CALFED Science Conference in a paper entitled "Anthropogenic influences on rates of geomorphological and fluvial processes in Wildcat Watershed: Implications for Restoration". The details of the methodology can be found on SFEI's web site at http://www.sfei.org/watersheds/bawsa.pdf. We will apply this methodology in four phases: 1. Channel-scale investigations of the creeks in the investigated sub-watersheds to document, quantify, and analyze the geomorphic characteristics and condition of the channel system, and sediment supplied by fluvial processes along the banks and terraces, 2. Interpretation of the Geomorphological and Historical Ecological information to enhance interpretation of the physical and biological aspects of the watersheds, 3. Work with the Stewardship groups, the RCD and other consultants to write the watershed management plans for Sulphur Creek and Carneros Creek, and 4. Relate the information gathered to current Napa River management needs including helping to confirm

or reject the sediment impairment listing, determining the causes and effects of water supply and flooding, and recommending a prioritization of areas with high restoration potential.

The PWA's Erosion Inventory protocol is a *forward looking* watershed assessment in which future sediment sources are identified, quantified and prescribed for cost-effective erosion prevention treatment. The process of identifying existing and future sediment delivery sites is significantly different from the *backward-looking* inventory conducted to develop a sediment budget. A sediment budget is a statement of the production, delivery and routing of erosion products from past erosion events. The PWA protocol will be applied to the upland areas of the watersheds and will be used to complement and expand on the results of the WSA.

Success Criteria: The substantiation of the results of all these new methodologies coupled with the other techniques used to carry out the objectives of this project will be evident over the longer term through: 1. The writing of the watershed management plans with the community involved from the point of determining the scope of the scientific assessments through to the resolution of appropriate and achievable restoration alternatives, and 2. With the success of the on-the-ground restoration projects that will occur as a result of the watershed management plans on Sulphur and Carneros Creeks.

c. Explain how the finished project will be maintained as necessary, and to what degree it may require continued funding from outside the community.

The main finished products will be two watershed management and restoration plans. There will be no further funding required for the planning phase as proposed here. There is likely to be further funding required from outside of the community for restoration projects that result from this proposal. In the future, the stewardship groups, with assistance from the RCD, may apply for further funds for the purpose of restoration through, for example, the CALFED Ecosystem Restoration Program, the Clean Water Act Section 319(h), or the Nature Restoration Trust.

5. Describe how the monitoring component of the project will help determine the effectiveness of project implementation and assist the project proponent and CALFED with adaptive management processes. ***(3 pages)***

a. Identify performance measures appropriate for the stated goals and objectives of the project.

Monitoring and adaptive management go hand-in-hand with the long-term objectives of the proposed project for providing the planning framework for restoration in sub-watersheds of the Napa River watershed. Monitoring and adaptive management will, in effect, be the criteria with which to gage the performance of the proposed project. The diagram at the end of this section illustrates the adaptive management framework. Only upon success at each stage will the next stage be implemented. Therefore, the measurement of success will be the continuing process of evaluation and re-evaluation of information and management options as either new information becomes available or as restoration projects are carried out and re-evaluation occurs. The continued questioning by the community of what is best for their watershed, in the context of downstream accumulative effects, will ensure long-term sustainability of the watersheds and connected environments in the CALFED solution area.

b. Describe how this project will coordinate with and support other local and regional monitoring efforts.

Coordination with local monitoring efforts

One of the objectives of this proposal is to coordinate directly with other projects in the Napa River Watershed. In particular, the San Francisco Regional Water Quality Control Board in conjunction with Stillwater Sciences is presently conducting a "Limiting factors Analysis" as part of the Napa Watershed sediment TMDL (Clean Water Act 303(d) listing). Much of the data that we will collect will be applicable to either the calibration or verification of the modeling efforts for the TMDL. Applicable data will include data generated through the Historical Ecology task through interviews with long time residents of a variety of ethnic backgrounds, and analysis of historical maps, photographs, and documents, such as historical land use, historical vegetation coverages and structures, historical channel locations, form and function, and historical numbers of fish and biota. In addition, longitudinal profiles, cross-sections, sediment grainsize and other sediment and water source, storage, and supply characteristics, water temperature and dissolved oxygen, fish and macro-invertebrate counts, and barriers to fish survival and migration will be critical to model calibration or verification, all of which will be collected within the community oriented framework of this proposal.

Presently the Regional Board and Stillwater Sciences are proposing a Laser Altimetry project to CALFED that will produce high-resolution digital topographic data (2-3 meter ground spacing, elevations accurate within 15cm). We will coordinate with the Laser Altimetry project to collect data (longitudinal profiles in short reaches, and channel cross-sections) to calibrate or verify the detailed DEMs that will result from the project. The Laser Altimetry data will be used as part of the Regional Boards sediment TMDL study to:

2. Accurately define and delineate the complete channel network;
3. Accurately measure streambed gradients and watershed areas;
4. Predict channel bed form types (colluvial, cascade, step-pool, pool-riffle, plane-bed, sand-bed);
5. Predict dominant streambed grain size (d_{50});

6. Predict distributions of native fish, amphibian, and other stream species;
7. Estimate channel (bankfull width and depth) and valley (width) dimensions; and
8. Accurately identify shallow landslide hazard areas.

The outcomes of the Laser Altimetry project will be directly applicable for sub-watershed scale mapping in Sulphur and Carneros Creeks for generating continuous longitudinal profiles that will improve the geomorphic understanding of creek form and function, and secondly as an essential base map for landslide, vegetation, and land use mapping.

The data collected from the two watersheds will be ideal for calibration and verification of the Napa TMDL study and the proposed Laser Altimetry project. The two watersheds belong to quite different areas of the overall Napa River watershed and are physically quite different. Sulphur Creek drains a combined valley/upland area north of the USGS St. Helena gage site, while Carneros Creek drains an area dominated by lowlands and gentle hills in the tidal portion of the Napa River watershed. Sulphur Creek watershed is square, while Carneros Creek watershed is rectangular (long for its width).

Coordination with regional monitoring efforts

We will coordinate with the San Francisco Regional Water Quality Control Board led Regional Monitoring and Assessment Strategy (RMAS). This strategy will use rotational sampling to gather physical, chemical and biological resource assessment data over the next five-year period across all Bay Area watersheds. The types of data collected will be similar to those that would be collected with our current proposal and include: geomorphology, water quality (physio-chemical, nutrients, pathogens), macro-invertebrates, toxicity, and contaminants (metals, inorganic and organic substances, pesticides). The Napa River watershed is likely to be sampled within the RMAS framework in 2002 or 2003. We will coordinate with the San Francisco Regional Water Quality Control Board to ensure that the data gathered by this proposal will be consistent in quality and methodology to other regional monitoring strategies, including the RMAS.

c. Provide a description of any citizen monitoring programs that will be part of this project.

This project will involve both the Sulphur and Carneros stewardship groups in all stages of the design, monitoring, and interpretation of data collected, and in the development of the watershed management plans for each creek. The specific citizen monitoring will be as follows:

Historical assessments – Members of the community will be approached to offer their memories of historical watershed characteristics, to share their old photos or maps that they might have in their possession, and to discuss their memories of the abundance and diversity of fish and biota in the stream environments. Both stewardship groups have expressed an interest in collecting and sharing historical information relative to their respective watersheds. It is our experience that the Historical Ecology task provides a good communication tool that brings together disparate segments of the community with different value and belief systems and connects the local community as a whole to the common goals of stewardship and restoration.

Physical and biological assessments – Members of the stewardship groups will be invited to get involved in the geomorphological and fish and macro-invertebrate data collection. The "field classroom" is the best place to teach interested locals about scientific data collection and interpretation of field observations that support management and restoration recommendations. Receiving a directive and the needs from the community and then involving the community in all stages of data collection, interpretation and the construction of the management plans ensures a greater chance of consensus for the final product.

Water quality monitoring - A Water quality sampling protocol will be designed and data (pH, Conductivity, Salinity, Temperature, Turbidity, and Dissolved Oxygen) will be collected as part of this proposed project. The stewardship groups will be given the opportunity to learn techniques and, should they desire, carry on monitoring after the management plans are complete. If a continuous data set is collected it will be possible to determine the effects of future creek restoration activities. In any case, physical, chemical, and biological data collections may be repeated by the stewardship groups (with help from the RCD or SFEI as necessary) in the future and compared to baseline data collected during the implementation of this proposal.

d. What monitoring protocols will be used, and are they widely accepted as standard protocols?

The monitoring protocols used by SFEI for studying historical physical, chemical and biological landscape change (Historical Ecology) and geomorphic processes in high detail (Watershed Science Approach (WSA)) may be considered relatively new techniques. However, they follow accepted techniques within the respective disciplines of ecological history and geomorphology and both of these techniques have been applied in other watersheds in the Bay Area. Both monitoring protocols are endorsed in the Bay Area by the EPA, the San Francisco Regional Water Quality Control Board, and the U.S. Army Corps of Engineers, and by a number of local agencies (Southern Sonoma RCD, Alameda County, Contra Costa County, and Marin County). The Historical Ecology protocol has been applied in Wildcat Watershed and Crow Creek Watershed, and a small project has already started in the Napa River Watershed. The WSA has been applied in a number of Bay Area watersheds: Miller, Novato, San Antonio, Carriger, Wildcat, Crow, and San Pedro.

e. Describe how the type and manner of data collection and analysis will be useful for informing local decision-making?

The following are examples of analysis that will be carried out on the data collected to inform the decision-making processes.

Historical Ecology
The Historical Ecology (HE) tasks of the project will generate the historical base line for each watershed as a reference point to help determine desirable and realistic future conditions. The HE task will provide analyses and information that will both directly inform the watershed management / restoration and decision making processes as well as provide information to the other tasks of the study. It will gather and analyze historical fish numbers and species, vegetation species and structures and channel form and

function and will gather and analyze historical land use and land management data to form past snapshots of the historical landscape. These will inform the geomorphic investigations that will determine cause-and-effect relationships between land use, land management, and humans.

In-stream Geomorphology

The in-stream geomorphology (WSA) tasks will provide analyses and information directly to the decision-making processes. For example, if a stewardship group determines that eroding banks are a priority that require management and restoration, the geomorphology tasks will determine the factors that contribute to the problem, help determine the reaches where restoration can most effectively occur, and recommend appropriate “on-site” or “off-site” restoration methods.

Sediment budget

The sediment budget component will gather all the information of sediment sources, storage and supply to the stream environments and will help guide future land management and restoration decisions. For example, if an abundance of fine sediment is found to limit suitable fish spawning habitat, an understanding of the sources of fine sediment supply (and future sources in relation to foreseeable future land management changes) will enable the stewardship to address those sources in a manner appropriate to the watershed.

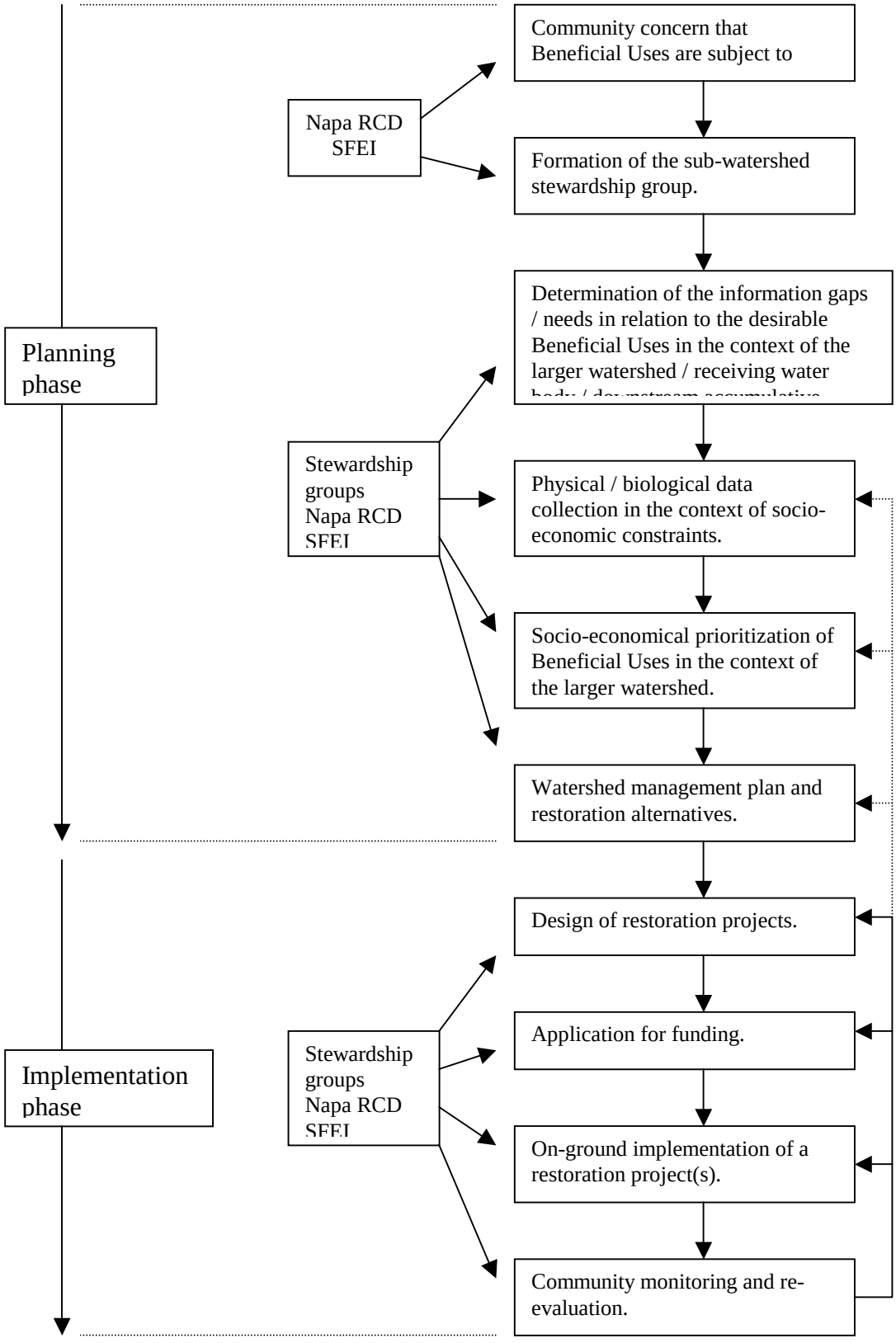
In-stream biological surveys and barriers to survival and migration

This task will also provide information that can be used to guide restoration and management decisions. For example, it will allow a comparison of present fish numbers and species to historical information and thereby help to determine the viability of restoring the creek to its former function. In other streams in the Bay Area it has been found that the most significant impact to fish survival and habitat viability is obstruction to fish migration. Results from this task may indicate that sediment grainsize or turbidity are limiting factors, however, migration barriers will also need to be evaluated for removal.

Water quality

Water quality parameters measured during the water quality surveys may provide information directly to management solutions. For example, average water temperatures may be greater than those suitable for fish habitat. This information, coupled with historic water temperature information, riparian surveys, and flow conditions would allow the stewardships to assess appropriate methods to reduce temperature and potentially increase the numbers and diversity of fish in their creeks.

Adaptive management and monitoring.



6. If this project is to develop specific watershed conservation, maintenance or restoration actions, describe the scientific basis for the action(s) described in the proposal. ***(2 pages)***

This project does not propose to develop / implement specific watershed conservation, maintenance or restoration actions. However, previous assessments have helped us more fully develop the proposed assessment project.

a. Any assessment of watershed condition(s) that has already been developed by you or others.

The proposed work relies in part on earlier work by Eric Larsen and Mitchell Katzel. Their 1999 study for the Mennen Environmental Foundation evaluated historical changes and responses to land management practices by means of a geomorphological examination of the Sulphur Creek channel. This proposed project will go beyond the work of Larsen and Katzel in that it will provide detailed information on volumes and rates of bed and bank erosion, character, locations, and abundance of pools, species and locations and sources of woody debris and other habitat features, condition of reventments, grade controls etc., classification of the stream, causes and rates of change over time, sources of sediment supply.

b. Previous assessment(s) used to establish your project goals and objectives, or to inform the basic assumptions of your proposal.

The overall project assumptions were described in response to question 1, above. We further assume, as did Mitchell and Katzel, that the primary source of information on Sulphur Creek is the geomorphology of the channel. Our intent is to complete the geomorphological investigation that Mitchel and Katzel began and to add complementary studies of sediment sources, land use, and fish habitat quality. Katzel and Larsen have been invited to act as technical reviewers on this project. We have included diversity of scientific viewpoint in our effort, in the belief that we may learn more by doing so.

c. A description of the scientific assumptions used to develop the project goals, objectives and proposed actions, and the degree to which those assumptions are widely accepted (both in the science community as a whole, and in the watershed community).

Local sub-watershed restoration decisions should be made in the context of historical land use and management. For example, current land management may not be the cause of reductions in beneficial uses. The majority of sediment supply or erosion or vegetation removal may have occurred 50 to 200 year ago. Downstream cumulative effects at the watershed or receiving water body scale must be taken into account. For example, if an analysis of Sulphur Creek finds that, stream temperature is the main limiting factor for fish survival and the community, over the next decade, effects restoration that reduces stream temperature, there may be no improvement in numbers or diversity of the fishery because of barriers or other factors in the main stem of the Napa River. Therefore we reassert the widely accepted principal that quality, defensible science is an important precursor to sound environmental management and restoration decisions.

**** Because we are not effecting actions of restoration in this proposed project, question 6d and 6e do not appear to be applicable to our proposal.**

7.A. How will the proposal address multiple CALFED objectives (see Section I) in an integrated fashion, with emphasis on water supply reliability, water quality, ecosystem quality, and levee stability objectives CALFED has established for Stage 1 of the program? *(2 pages)*

Our proposal addresses all of the CALFED primary objectives through the community driven, logical, progressive and adaptive development of two watershed management plans. The proposed project focuses on community involvement in the collection of historic records and new data that are by nature integrative of community and CALFED goals. It will raise awareness and increase involvement of the community in land use decisions, improve parcel management, engage community groups in initiating restoration activities at sites that will be prioritized through this and other projects, and adapt monitoring protocols for local use in assessing the success of restoration projects and land use and management changes. Through this project, the local community will become aware of the primary CALFED goals. In fact, current Napa River watershed planning and management efforts essentially represent a microcosm of CALFED, with an overlapping set of primary objectives: Ecosystem Quality, Water Supply, and Water Quality, and Levee System Integrity. The Napa River watershed and its adjacent marsh complex is home to many of the CALFED species of concern and is one of the most important habitats on the north coast with many endemic species. Therefore, the overlapping interests of the local community and the CALFED Bay-Delta Program provide a strong motivating force to enhance the already strong bonds between CALFED and the Napa County RCD, the Land Trust of Napa County, the County Planning Department, the Flood Control District and its partners in implementing the "Living River" concept, and a multitude of effective and very active local community and interest groups.

7.B. Explain how the proposal will help define and illustrate relationships between watershed processes (including human elements), watershed management, and the primary goals and objectives of the CALFED (see Section I).

Our proposed project will help to facilitate and improve coordination, collaboration, and assistance among local watershed stewardship groups, government agencies and other organizations. Collaboration among multiple interests is implicit in the design of this study. Land owners, residents, county, state, and federal agencies have already expressed a strong interest in this project (see letters of support). We will help foster collaboration among multiple interests (local residents and land owners, agencies, government, and scientists) by building a common base of understanding and using a defensible scientific approach to help further define watershed needs and priorities for restoration that are socio-economically acceptable, and document these in the two watershed management plans. Also by nature, this project is multi-disciplinary collecting social, physical, and ecological data and interpreting them to build an informed picture of the entire watershed system, human and natural.

As indicated previously, we will develop and adapt relatively new watershed monitoring and assessment protocols for use in the Napa River Watershed using a community driven framework. In doing so, we will demonstrate the use of these tools in the Sulphur Creek and Carneros Creek watersheds for improving an understanding between watershed processes and land management. We suggest that these tools will be directly applicable to other watersheds in the CALFED area of concern. Education and out-reach are important components of watershed management as they may reduce the impacts that humans

have on their environment, now and in the future. In this way we are supporting and developing a strategy that will support long-term sustainability of local watershed activities.

The proposed project integrates important elements of the CALFED program by either directly addressing levee and revetment stability, water quality, sediment and water conveyance, and ecosystem function during the development of the watershed management plans, or by suggesting management or restoration options which may include biological or physical restoration, water transfers for irrigation, water use efficiency, or water storage that may impact the flows needed for other beneficial uses.

7.C. Identify a lead agency for environmental compliance, such as CEQA or NEPA. Describe the program's strategy and timetable on environmental compliance.

Upon approval of this proposal, the Napa County Resource Conservation District will work the California Department of Water Resources in matters of environmental compliance. For the purposes of this project we believe that we are categorically exempt from the California Environmental Quality Act (CEQA). Section 15306 of the CEQA Guidelines provides a categorical exemption for "information collection" projects that "consist of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource." The section goes on to note that these "information collection" projects may be strictly for "information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded."

We will work with DWR to assure that our assumption of categorical exemption is correct and to have the appropriate documentation approved.

8. Describe any other important aspects of your program that you could not address in the above items, and that you feel are critical to fully describing your project. ***(2 pages)***

We feel that we have described our intent and important aspects in other sections.

Submit all requested forms, including those not included in this Proposal Solicitation Package, and needed for the project.

CALFED Watershed Program Budget Summary I

Task	Task Description	Labor Rate*	Hours	Total Labor	Supplies	Materials	Subcontract**	Match	CALFED	Total
Task 1	Internal project management and group	40	225	9,000	1000		18,500	0	28,500	**28,500**
	Sulphur Ck.									
Task 2	Stewardship meetings	40	338	13,500	1500		3,200	19560	18,200	**37,760**
Task 3	Historical Ecology.	40	225	9,000	1000		20,000	15000	30,000	**45,000**
Task 4	Channel geomorphology.	40	113	4,500	500		40,000	3000	45,000	**48,000**
Task 5	Hill slope / tributary geomorphology / sediment budget.	40	113	4,500	500		35,000	3000	40,000	**43,000**
Task 6	Fish and macro-invertebrate assessments	40	225	9,000	1000		0	1000	10,000	**11,000**
Task 7	Design and carry out a Water Quality monitoring program.	40	50	2,000	500		2,500	500	5,000	**5,500**
Task 8	Write the Sulphur Ck. watershed management plan	40	238	9,500	500		10,000	3000	20,000	**23,000**
	Carneros Ck.									
Task 9	Refinement of needs	40	338	13,500	1500		0	26760	15,000	**41,760**
Task 10	Stewardship meetings.	40	25	1,000			3,200	2400	4,200	**6,600**
Task 11	Carry out appropriate physical and biological assessments	40	731	29,250	3250		92,500	22500	125,000	**147,500**
Task 12	Write the Carneros Ck. watershed management plan	40	238	9,500	500		10,000	3000	20,000	**23,000**
			2,856	**114,250**			**234,900**	**99,720**	**360,900**	**460,620**

	CALFED WATERSHED PROGRAM BUDGET AND PROJECT SUMMARY II				
		Completion date	**Matched funds**	**CALFED funds**	**Total**
Task Description					
	Project management				
Task 1	Internal project management and group meetings	Dec-03	0	28,500	28,500
1a	Project and financial tracking. Keep a check on the budget to ensure that the products and milestones are being reached in a timely manager and under or on budget. Make decisions when problems occur based on group input.				
1b	Team meetings (6 per year for the duration of the projects). These will include all the members of the group working on the projects including RCD, SFEI, other consultants and members of the stewardship groups. The purpose is to initially discuss existing information to help direct new information collections and then to discuss new data and findings and to use interim findings and group interaction to adaptively manage the project.				
1c	Internal, technical, and external pair review. Select two external professionals to review the watershed management plans and technical approaches				
1d	Quarterly progress reports: Progress reports on project implementation, including financial status, milestones reached, products completed, and general assessment of overall progress, including problems encountered or anticipated.				
1e	Draft final report: Draft report summarizing the project implementation, achievements, product deliveries, financial status. To be sent to the Contract Manager for review and comment along with copies of the two watershed management plans.				
1f	Final report: Revised report and project management plans incorporating comments from the Contract Manager and others.				
	Sulphur Ck.				
Task 2	Stewardship meetings. RCD facilitator will work with group to identify stakeholders not yet part of the group and to disseminate educational information. Technical staff will attend monthly meetings to gain further insights into local concerns. Gain permission for watershed access. Recruit members of the stewardship groups or other public for volunteer field work	Mar-02	19560	18,200	37,760
Task 3	Historical Ecology. Analyze soils, vegetation, land use and in-stream biology over approximately two centuries of human impacts and landscape changes to determine cause-and-effect relationships in the context of locally driven beneficial uses. Determine environmental trends and practical management solutions.	Dec-02	15,000	30,000	45,000
3a	Data collection that may include fieldwork, aerial photo interpretation, interviews and oral histories, and historical documents such as early maps, Land Office surveys and maps, Spanish land grant case transcripts and maps, archeological and ethnographic information, mission records, settlers journals, painting, photographs, newspaper articles, and County recorders office information.				
3b	Early watershed conditions. Interpret what the early landscape looked like and how it functions, what species were there and how many of each species.				
3c	Landscape change over time. Produce a time line of significant events. Analyze the data for recent trends to help determine feasibility of various restoration alternatives.				
Task 4	Channel geomorphology. Conduct field data collection to characterize channel condition and dynamics, and habitat suitability and limitations for native stream species (e.g., bank erosion pattern, channel cross-sections, longitudinal profiles, dominant grain size, terraces, historical channel incision, pool forming factors, assessment of barriers to anadromous fish migration, and inferred responses of channel form and hydrology to land uses.	Sep-02	3,000	45,000	48,000

4a	Field reconnaissance and field work				
4b	Data reduction and QA/QC				
4c	Analysis and summary graphing and tables				
4d	Interpretation				
Task 5	Hill slope / tributary geomorphology / sediment budget. The objective of this task is to determine the relevant sources of sediment entering the channel and too use this information to make feasible recommendations on how to manage sediment in the system.	Sep-02	3,000	40,000	43,000
5a	Aerial photograph interpretation				
5b	Field reconnaissance and field work				
5c	Data reduction and QA/QC				
5d	Data interpretation and addition of the channel geomorphology data to build a sediment budget.				
Task 6	Fish and macro-invertebrate assessments / assessments of barriers to fish survival and migration. Set priorities for improving the habitat for fish and other species such as improving habitat complexity, riparian vegetation, water flow, water temperature, barrier removal or other remedies to barrier to migration.	Sep-02	1,000	10,000	11,000
6a	Analyze existing data on fish and benthic macroinverebrates (counts species and locations)				
6b	Conduct additional fieldwork as necessary				
6c	Data analysis and interpretation in the context of local needs				
Task 7	Design and carry out a Water Quality monitoring program. Conduct a synoptic survey of basic water quality on at least three occasions (wet season, spring and late summer) at selected locations on the mainstem and tributaries. Collect Temperature, conductivity, dissolved oxygen, turbidity, and pH between the hours of 11am and 3pm at all locations	Sep-02	500	5,000	5,500
Task 8	Write the Sulphur Ck. watershed management plan. This will include summaries of the individual tasks, methods and assumptions, and a synthesis of all the data collected into a local desirable and achievable set of watershed management and restoration or maintenance objectives	Dec-02	3,000	20,000	23,000
	Carneros Ck.				
Task 9	Refinement of needs. Attend monthly stewardship group meetings. Work with the Carneros Creek stewardship group to help them to determine and prioritize their local needs. Help them to write a short document that outlines their needs. Use this document to determine the appropriate physical and biological data requirements.	Dec-02	26760	15,000	41,760
Task 10	Stewardship meetings. Technical staff will attend monthly meetings to gain further insights into local concerns. Gain permission for watershed access. Recruit members of the stewardship groups or other public for volunteer field work	Mar-03	2,400	4,200	6,600
Task 11	Carry out appropriate physical and biological assessments (likely to be similar to those of Sulphur Ck.)	Sep-03	22,500	125,000	147,500
Tasl 12	Write the Carneros Ck. watershed management plan		3,000	20,000	23,000
		Total	**99,720**	**360,900**	**460,620**

Success Criteria

The overall success of the project will be gauged through the successful agreement by the local watershed residents to a set of achievable and relevant management objectives and restoration directives. By having the local groups initiate the process as in Sulphur and Carneros Creek, and then involved in all part of the data collection, interpretation, and development of the management plans we a sure that there is a very high likelihood for achieving the goals of each task and the overall goals of the project